

# City of Holyoke Retirement System

Actuarial Valuation and Review as of  
January 1, 2014







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*August 27, 2014*

*City of Holyoke Retirement System  
20 Korean Veterans Plaza, Room 207  
Holyoke, MA 01040*

*Dear Board Members:*

*We are pleased to submit this revised Actuarial Valuation and Review as of January 1, 2014. This report replaces the report dated May 20, 2014. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2015 and later years and analyzes the preceding two years' experience.*

*This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of the Holyoke Retirement System. That assistance is gratefully acknowledged.*

*The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.*


*The actuarial calculations were directed under my supervision. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in my opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*



*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*Segal Consulting, a Member of The Segal Group, Inc.*

By:   
*Kathleen A. Riley, FSA, MAAA, EA*  
*Senior Vice President and Actuary*

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## **SECTION 1: Valuation Summary for the City of Holyoke Retirement System**

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### **Purpose**

This report has been prepared by Segal Consulting to present a valuation of the City of Holyoke Retirement System as of January 1, 2014. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2014;
- The assets of the Plan as of December 31, 2013;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

### **Significant Issues in Valuation Year**

The following key findings were the result of this actuarial valuation:

1. The actuarial valuation report as of January 1, 2014 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected.
2. During the plan years ended 2012 and 2013, the market value rates of return were 15.55% and 18.78%, respectively. Because the actuarial value of assets gradually recognizes market value fluctuations over a four-year period, the actuarial rate of return for the plan years ended 2012 and 2013 were 12.18% and 12.15% , respectively. The actuarial value of assets as of December 31, 2013 was \$212.5 million, or 92.1% of the market value of assets of \$230.9 million (as reported in the Annual Statement). As of December 31, 2011, the actuarial value of assets was 100.5% of the market value.
3. As indicated in Section 2, Subsection B of this report, the total unrecognized investment gain as of December 31, 2013 is \$18,332,689. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment losses derived from future experience. This implies that earning the assumed rate of investment return (net of expenses) per year on a market value basis will result in investment gains on the actuarial value of assets in the next few years.



## SECTION 1: Valuation Summary for the City of Holyoke Retirement System

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4. The following actuarial assumptions were changed with this valuation:
  - The investment return assumption was decreased from 8.00% to 7.75%.
  - The administrative expense assumption was increased from \$400,000 for calendar 2012 to \$415,000 for calendar 2014.
  - The pre-retirement mortality assumption was changed from the RP-2000 Employee Mortality Table projected 12 years with Scale AA to the RP-2000 Employee Mortality Table projected generationally with Scale AA from 2010.
  - The mortality assumption for non-disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table projected 12 years with Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale AA from 2010.
  - The mortality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only to the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only projected generationally with Scale AA from 2010.
  - The assumed rates of salary increases were changed from level rates of 4.75% per year for Group 1 and Group 2 and 5.25% per year for Group 4 to rates based on years of service with ultimate rates of 4.25% per year for Group 1, 4.5% per year for Group 2 and 4.75% per year for Group 4.
  - The actuarial cost method was changed to better reflect the impact of the plan changes effective for employees hired on or after April 2, 2012.

Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of \$10,599,622 and a net increase in the employer normal cost of \$35,977.

5. Members hired on or after April 2, 2012 are covered by the provisions of Chapter 32 as amended by Chapter 176 of the Acts of 2011 and Chapter 139 of the Acts of 2012.
6. The unfunded liability has decreased from \$165.1 million as of January 1, 2012 to \$153.1 million as of January 1, 2014. The unfunded liability was expected to increase to \$165.4 million. The decrease of \$12.3 million from the expected unfunded liability is primarily due to an investment gain on an actuarial basis of \$15.6 million and salary increases less than expected, offset by the increase in liability due to the assumption changes described above. Other sources of gains and losses are described in Section 2C.



## SECTION 1: Valuation Summary for the City of Holyoke Retirement System

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7. Last year, the Board approved a funding schedule that fully amortized the unfunded actuarial accrued liability as of June 30, 2032 with amortization payments that increase 3.75% per year. Because the fiscal 2015 appropriation has already been budgeted at \$17,118,305, the results of this valuation will first be reflected in the fiscal 2016 appropriation. The funding schedule in Chart 16 fully funds the System by June 30, 2032 with a fiscal 2016 appropriation that has been set equal to the fiscal 2015 appropriation. The 2010 ERI is amortized in level amortization payments over eight years and the remaining unfunded liability in increasing amortization payments (2.75% per year) over 18 years.
8. On a market value basis, the funded ratio has increased from 50.68% as of January 1, 2012 to 63.14% as of January 1, 2014. On an actuarial basis, the funded ratio has increased from 50.92% as of January 1, 2012 to 58.13% as of January 1, 2014.
9. Section 4 includes the disclosure information required by Governmental Accounting Standards Board (GASB) Statements No. 25 and 27. Section 5 shows the format of the disclosure information required by GASB Statements No. 67 and 68. The exhibits in Section 5 will be completed at the end of the year when December 31, 2014 financial information is available. At that time, the liabilities will be projected to the end of the year and the allocations to each employer will be determined.



## SECTION 1: Valuation Summary for the City of Holyoke Retirement System

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### Summary of Key Valuation Results

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	2014	2012
<b>Contributions for fiscal year beginning July 1:</b>		
Recommended for fiscal 2015 and 2013	\$17,118,305	\$16,007,399
Recommended for fiscal 2016 and 2014	17,118,305	16,799,031
Recommended for fiscal 2017 and 2015	17,288,112	17,547,993
<b>Funding elements for plan year beginning January 1:</b>		
Normal cost, including administrative expenses	\$8,493,561	\$8,378,364
Market value of assets, as reported on the Annual Statement	230,869,315	170,524,166
Actuarial value of assets	212,536,626	171,322,821
Actuarial accrued liability	365,625,786	336,471,320
Unfunded actuarial accrued liability	153,089,160	165,148,499
Funded ratio based on market value of assets	63.14%	50.68%
Funded ratio based on actuarial value of assets	58.13%	50.92%
<b>Demographic data for plan year beginning January 1:</b>		
Number of retired participants and beneficiaries	927	922
Number of inactive participants entitled to a return of their employee contributions	138	131
Number of inactive participants with a vested right to a deferred or immediate benefit	22	21
Number of active participants	1,250	1,228
Total payroll	\$55,011,023	\$53,488,428
Average payroll	44,009	43,557

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## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

*A historical perspective of how the participant population has changed over the past eight valuations can be seen in this chart.*

#### CHART 1

##### Participant Population: 2000 – 2013

Year Ended December 31	Active Participants	Inactive Participants	Retired Participants and Beneficiaries	Ratio of Non-Actives to Actives
2000	1,410	182	860	0.74
2002	1,429	234	875	0.78
2004	1,319	221	947	0.89
2006	1,289	252	915	0.91
2008	1,231	221	906	0.92
2009	1,203	188	900	0.90
2011	1,228	152	922	0.87
2013	1,250	160	927	0.87



## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 1,250 active participants with an average age of 45.8, average years of service of 12.2 years and average payroll of \$44,009. The 1,228 active participants in the prior valuation had an average age of 45.9, average service of 12.2 years and average payroll of \$43,557.

Among the active participants, there were none with unknown age and/or service information.

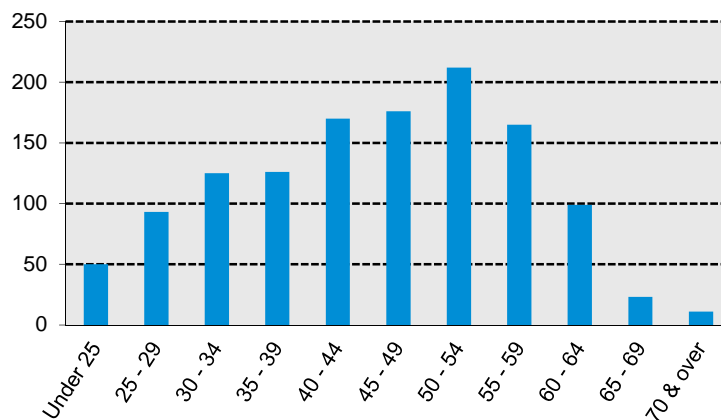
### Inactive Participants

In this year's valuation, there were 22 participants with a vested right to a deferred or immediate vested benefit and 138 participants entitled to a return of their employee contributions.

*These graphs show a distribution of active participants by age and by years of service.*

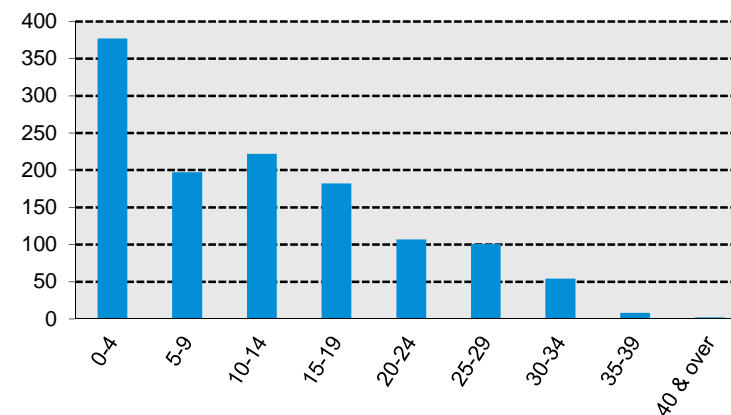
**CHART 2**

**Distribution of Active Participants by Age as of December 31, 2013**



**CHART 3**

**Distribution of Active Participants by Years of Service as of December 31, 2013**





## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### Retired Participants and Beneficiaries

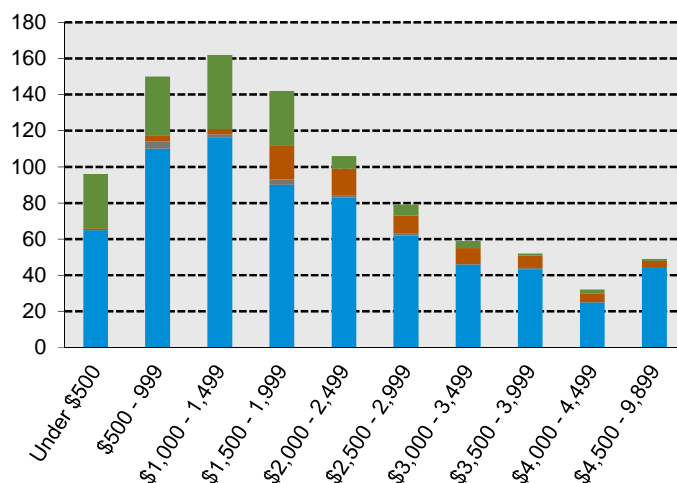
As of December 31, 2013, 772 retired participants and 155 beneficiaries were receiving total monthly benefits of \$1,849,017, excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 752 retired participants and 169 beneficiaries receiving monthly benefits of \$1,705,377, excluding COLAs reimbursed by the Commonwealth. There were no retired participants in suspended status this year and one retired participant in the prior valuation.

*These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.*

■ Beneficiaries  
■ Accidental Disability  
■ Ordinary Disability  
■ Superannuation

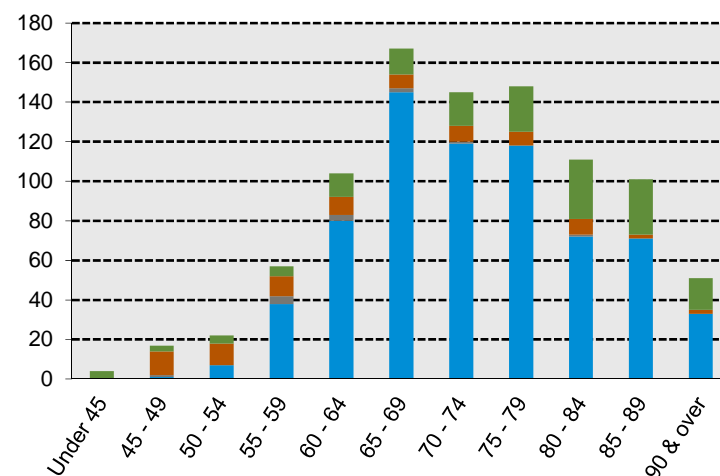
**CHART 4**

**Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2013**



**CHART 5**

**Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2013**





## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### B. FINANCIAL INFORMATION

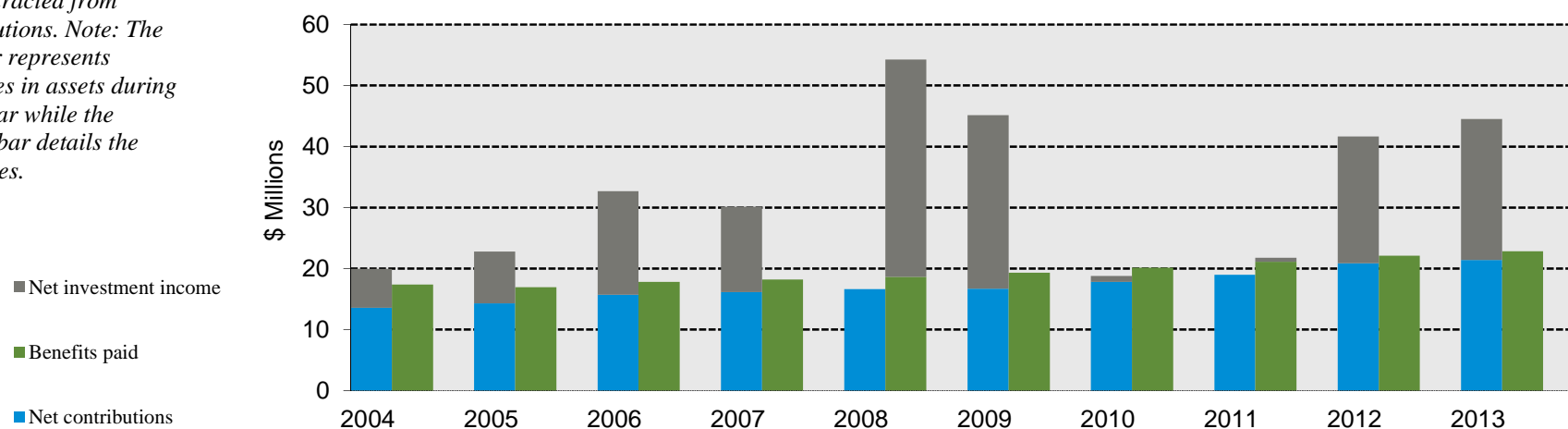
Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

*The chart depicts the components of changes in the actuarial value of assets over the last nine years. Prior to 2009, administrative expenses were subtracted from investment income. In 2009 and later, administrative expenses are subtracted from contributions. Note: The first bar represents increases in assets during each year while the second bar details the decreases.*

**CHART 6**

**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 2004 – 2013**





## SECTION 2: Valuation Results for the City of Holyoke Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

### CHART 7 Determination of Actuarial Value of Assets

	Year Ended	
	December 31, 2013	December 31, 2012
1. Market value of assets at the end of the year	\$230,869,315	\$195,679,294
2. Calculation of unrecognized return*	Original <u>Amount</u>	Unrecognized <u>Return</u>
(a) Year ended December 31, 2013	\$21,020,353	\$15,765,264
(b) Year ended December 31, 2012	12,822,357	6,411,179
(c) Year ended December 31, 2011	-15,375,017	-3,843,754
(d) Year ended December 31, 2010	11,554,288	N/A
(e) Total unrecognized return	18,332,689	4,817,831
3. Preliminary actuarial value: (1) - (2e)	212,536,626	190,861,463
4. Adjustment to be within 20% corridor	0	0
5. Final actuarial value of assets at the end of the year: (3) + (4)	<u>212,536,626</u>	<u>\$190,861,463</u>
6. Actuarial value as a percentage of market value: (5) ÷ (1)	92.1%	97.5%
7. Amount deferred for future recognition: (1) - (5)	18,332,689	\$4,817,831

\* Unrecognized return is the difference between the total return and the expected return on a market value basis and is recognized over a four-year period.



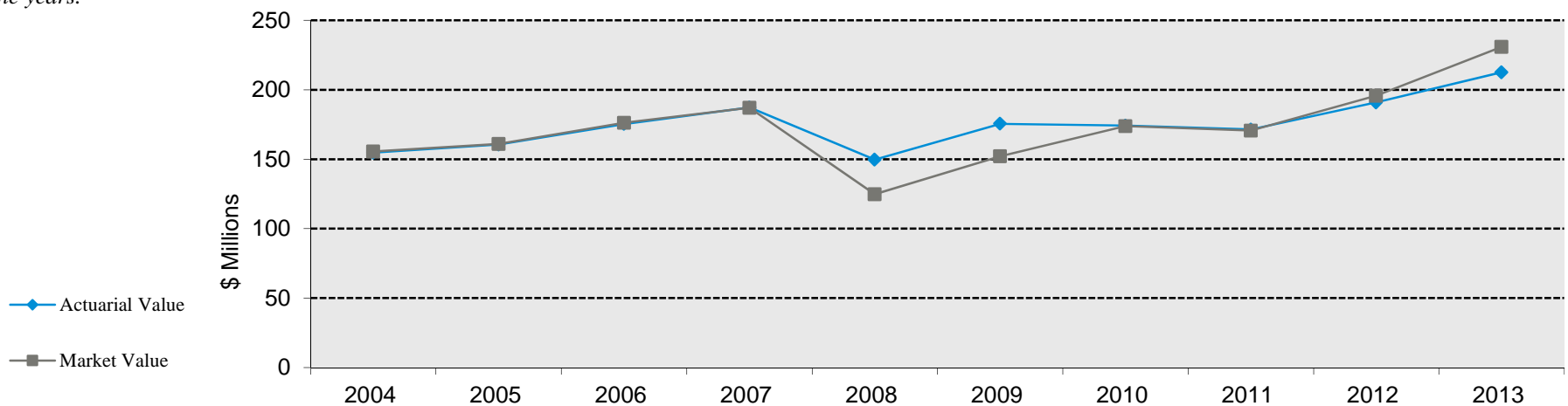
## SECTION 2: Valuation Results for the City of Holyoke Retirement System

Both the actuarial value and market value of assets are representations of the Holyoke Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Holyoke Retirement System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*This chart shows the change in the actuarial value of assets versus the market value over the past nine years.*

**CHART 8**

**Actuarial Value of Assets vs. Market Value of Assets as of December 31, 2004 – 2013**





## SECTION 2: Valuation Results for the City of Holyoke Retirement System

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### C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total experience gain for the two-year period ended December 31, 2013 is \$22,939,574. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience over the past two years.*

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### CHART 9

#### Actuarial Experience for Two-Year Period Ended December 31, 2013

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1. Net gain from investments*	\$15,604,258
2. Net gain from administrative expenses	46,183
3. Net gain from other experience**	<u>7,289,133</u>
4. Net experience gain: (1) + (2) + (3)	\$22,939,574

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\* Details in Chart 10

\*\* Details in Chart 13



## SECTION 2: Valuation Results for the City of Holyoke Retirement System

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### Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Holyoke Retirement System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets was 8.00% for 2013 and 2012. The actual rate of return on an actuarial basis for the 2013 plan year was 12.15% and 12.18% for the 2012 year.

Since the actual return for the year was greater than the assumed return, the Holyoke Retirement System experienced an actuarial gain during the two-year period ending December 31, 2013 of \$15,604,258 with regard to its investments, including an adjustment for interest.

*This chart shows the gain/(loss) due to investment experience.*

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### CHART 10 Actuarial Value Investment Experience

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	Year Ended	
	December 31, 2013	December 31, 2012
1. Actual return	\$23,102,736	\$20,797,451
2. Average value of assets	190,147,676	170,693,416
3. Actual rate of return: (1) ÷ (2)	12.15%	12.18%
4. Assumed rate of return	8.00%	8.00%
5. Expected return: (2) x (4)	\$15,211,814	\$13,655,474
6. Actuarial gain: (1) – (5)	<u>\$7,890,922</u>	<u>\$7,141,977</u>

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## SECTION 2: Valuation Results for the City of Holyoke Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

Based upon this experience and future expectations, we have decreased the assumed rate of return from 8.00% to 7.75%.

### CHART 11

#### Investment Return – Actuarial Value vs. Market Value: 2004 - 2013

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
2004	\$6,363,022	4.24%	\$12,004,310	8.26%
2005	8,501,495	5.55	8,130,511	5.28
2006	16,963,828	10.64	17,345,130	10.85
2007	13,980,683	8.02	12,998,521	7.42
2008	-35,586,664	-19.11	-60,371,080	-32.45
2009	28,419,952	19.16	30,002,300	24.31
2010	1,003,663	0.58	24,006,517	15.91
2011	-681,482	-0.39	-1,126,300	-0.65
2012	20,797,451	12.18	26,413,937	15.55
2013	<u>23,102,736</u>	12.15	<u>36,617,594</u>	18.78
Total	\$82,864,684		\$106,021,440	
	Five-year average return	8.48%		14.28%
	Ten-year average return	4.93%		6.49%

*Note: Each year's yield is weighted by the average asset value in that year.*



## SECTION 2: Valuation Results for the City of Holyoke Retirement System

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

### Administrative Expenses

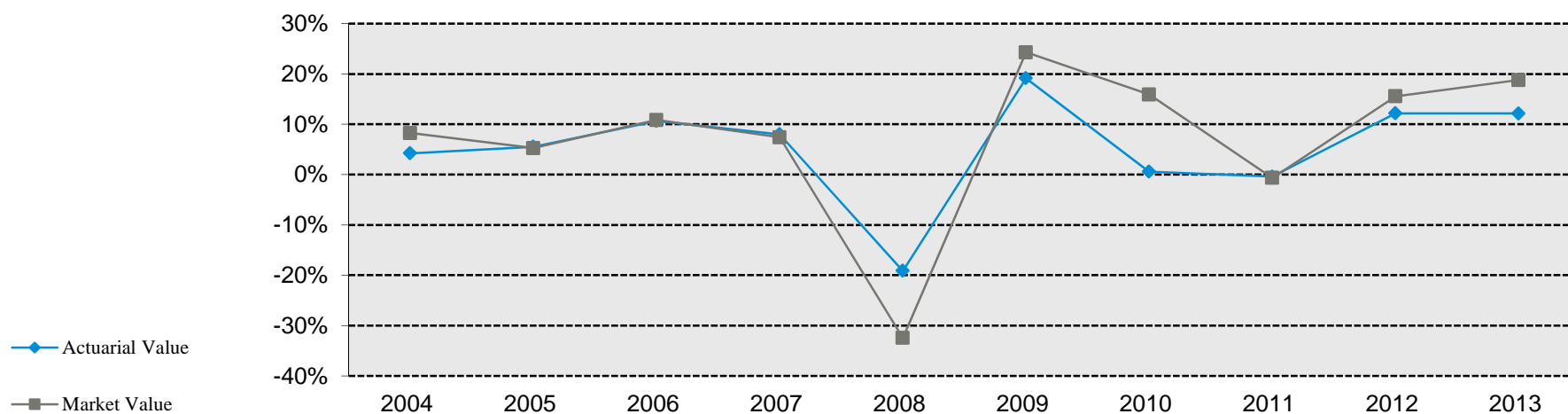
Administrative expenses for the years ended December 31, 2012 and 2013 were \$395,843 and \$394,456, respectively, compared to the assumption of \$400,000 for 2012 and \$418,000 for 2013 payable at the beginning of the year. This resulted in a gain of \$46,183 for the two-year period, including an adjustment for interest.

We have increased the assumption to \$415,000 for calendar 2014.

*This chart illustrates how this leveling effect has actually worked over the years 2004 - 2013.*

**CHART 12**

**Market and Actuarial Rates of Return for Years Ended December 31, 2004 - 2013**





## SECTION 2: Valuation Results for the City of Holyoke Retirement System

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### Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net gain from this other experience for the two-year period ending December 31, 2013 amounted to \$7,289,133, which is 2.0% of the actuarial accrued liability.

A brief summary of the gain/(loss) experience of the Holyoke Retirement System for the two-year period ending December 31, 2013 is shown in the chart below.

The following actuarial assumptions were changed with this valuation:

- The investment return assumption was decreased from 8.00% to 7.75%.

- The administrative expense assumption was increased from \$400,000 for calendar 2012 to \$415,000 for calendar 2014.
- The pre-retirement mortality assumption was changed from the RP-2000 Employee Mortality Table projected 12 years with Scale AA to the RP-2000 Employee Mortality Table projected generationally with Scale AA from 2010.
- The mortality assumption for non-disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table projected 12 years with Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale AA from 2010.
- The mortality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only to the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only projected generationally with Scale AA from 2010.

*The chart shows elements of the experience gain/(loss) for the most recent years.*

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### CHART 13

#### Experience Due to Changes in Demographics for Two-Year Period Ended December 31, 2013

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1. Salary increases for continuing actives less than expected	\$6,892,369
2. Miscellaneous experience gain	<u>396,764</u>
3. Total	\$7,289,133

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## SECTION 2: Valuation Results for the City of Holyoke Retirement System

- The assumed rates of salary increases were changed from level rates of 4.75% per year for Group 1 and Group 2 and 5.25% per year for Group 4 to rates based on years of service with ultimate rates of 4.25% per year for Group 1, 4.5% per year for Group 2 and 4.75% per year for Group 4.
- The actuarial cost method was changed to better reflect the impact of the plan changes effective for employees hired on or after April 2, 2012.

Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of \$10,599,622 and a net increase in the employer normal cost of \$35,977.

Members hired on or after April 2, 2012 are covered by the provisions of Chapter 32 as amended by Chapter 176 of the Acts of 2011 and Chapter 139 of the Acts of 2012.

Chart 14 below provides a reconciliation of the unfunded liability from the prior valuation to the current valuation.

### CHART 14

#### Development of Unfunded Actuarial Accrued Liability and (Gain)/Loss

	Year Ended	
	December 31, 2013	December 31, 2012
1. Unfunded actuarial accrued liability at beginning of year	\$165,338,677	\$165,148,499
2. Normal cost at beginning of year	8,755,390	8,378,364
3. Total contributions	-21,804,105	-21,277,302
4. Interest		
(a) For whole year on (1) + (2)	\$13,927,526	\$13,882,149
(b) For half year on (3)	<u>-788,376</u>	<u>-793,033</u>
(c) Total interest	<u>13,139,150</u>	<u>13,089,116</u>
5. Expected unfunded actuarial accrued liability	\$165,429,112	\$165,338,677
6. Changes due to:		
(a) Investment gain	-\$15,604,258	--
(b) Assumption changes	10,599,622	--
(c) Net gain from other experience	<u>-7,335,316</u>	--
(d) Total changes	<u>-12,339,952</u>	--
7. Unfunded actuarial accrued liability at end of year	<u>\$153,089,160</u>	--



## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

amortization payments (2.75% per year) over 18 years.

Because the fiscal 2015 appropriation has already been budgeted at \$17,118,305, the results of this valuation will first be reflected in the fiscal 2016 appropriation.

The funding schedule in Chart 16 fully funds the System by June 30, 2032 with a fiscal 2016 appropriation that has been set equal to the fiscal 2015 appropriation. The 2010 ERI is amortized in level amortization payments over eight years and the remaining unfunded liability in increasing

*The chart compares this valuation's recommended contribution with the prior valuation.*

**CHART 15**  
**Recommended Contribution**

	Year Beginning January 1			
	2014		2012	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$8,078,561	14.05%	\$7,978,364	14.21%
2. Administrative expenses	415,000	0.72%	400,000	0.71%
3. Expected employee contributions	<u>-5,388,884</u>	<u>-9.37%</u>	<u>-5,185,079</u>	<u>-9.24%</u>
4. Employer normal cost: (1) + (2) + (3)	\$3,104,677	5.40%	\$3,193,285	5.69%
5. Actuarial accrued liability	365,625,786		336,471,320	
6. Actuarial value of assets	<u>212,536,626</u>		<u>171,322,821</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$153,089,160		\$165,148,499	
8. Employer normal cost projected to July 1, 2014 and 2012, adjusted for timing	3,225,800	5.50%	3,327,760	5.80%
9. Projected unfunded actuarial accrued liability	158,910,678		171,627,355	
10. Payment on projected unfunded actuarial accrued liability, adjusted for timing	13,892,505	23.69%	12,679,639	22.10%
11. Recommended contribution: (8) + (10)	<u>\$17,118,305</u>	<u>29.19%</u>	<u>\$16,007,399</u>	<u>27.90%</u>
12. Projected payroll	\$58,641,570		\$57,383,849	

Notes: Recommended contributions are assumed to be paid on July 1 and December 31.  
Recommended contributions are set equal to the budgeted amounts determined with the previous valuation.



## SECTION 2: Valuation Results for the City of Holyoke Retirement System

### CHART 16

**Funding Schedule - Fully Funded by June 30, 2032 with Amortization Payments that Increase 2.75% Per Year and Fiscal 2016 Appropriation Equal to Fiscal 2015 Appropriation**

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of 2002 ERI Liability	(4) Amortization of 2003 ERI Liability	(5) Amortization of 2010 ERI Liability	(6) Amortization of FY06-07 Section 90 ACD Liability	(7) Amortization of FY08-09 Section 90 ACD Liability	(8) Amortization of Remaining Unfunded Liability	(9) Total Plan Cost: (2) + (3) + (4) + (5) + (6) + (7) + (8)	(10) Total UAL at Beginning of Fiscal Year	(11) Increase Over Prior Appropriation
2015	\$3,225,800	\$31,406	\$293,338	\$154,051	\$99,962	\$36,957	\$13,276,791	\$17,118,305	\$158,910,678	--
2016	3,367,926	32,270	301,405	154,051	102,711	37,974	13,121,968	17,118,305	156,533,829	0.00%
2017	3,516,281	33,157	309,694	154,051	105,535	39,018	13,130,376	17,288,112	154,123,084	0.99%
2018	3,671,138	34,069	318,210	154,051	108,438	40,091	13,491,461	17,817,458	151,502,819	3.06%
2019	3,832,779	35,006	326,961	154,051	111,420	41,194	13,862,476	18,363,887	148,283,432	3.07%
2020	4,001,501	35,969	335,952	154,051	114,484	42,327	14,243,695	18,927,979	144,407,598	3.07%
2021	4,177,612	36,958	345,191	154,051	117,632	43,490	14,635,396	19,510,330	139,813,252	3.08%
2022	4,361,434	37,975	354,683	154,051	120,867	44,686	15,037,870	20,111,566	134,433,213	3.08%
2023	4,553,304	39,019	364,437	-	124,190	45,915	15,451,411	20,578,276	128,194,773	2.32%
2024	4,753,573	40,092	374,459	-	127,605	47,177	15,876,325	21,219,231	121,182,189	3.11%
2025	4,962,606	41,195	384,756	-	131,114	48,474	16,312,924	21,881,069	113,160,069	3.12%
2026	5,180,786	42,328	395,337	-	134,720	49,807	16,761,530	22,564,508	104,037,357	3.12%
2027	5,408,510	43,491	406,209	-	138,424	51,176	17,222,471	23,270,281	93,715,587	3.13%
2028	5,646,196	44,687	417,379	-	142,231	52,583	17,696,090	23,999,166	82,088,305	3.13%
2029	5,894,275	45,916	428,858	-	146,142	54,029	18,182,733	24,751,953	69,040,427	3.14%
2030	6,153,202	47,178	440,652	-	150,161	55,514	18,682,758	25,529,465	54,447,569	3.14%
2031	6,423,448	48,475	452,770	-	154,290	57,041	19,196,534	26,332,558	38,175,320	3.15%
2032	6,705,507	49,808	465,221	-	158,534	58,610	19,724,437	27,162,117	20,078,444	3.15%
2033	6,999,892	-	-	-	-	-	-	6,999,892	-	-74.23%

Notes: Recommended contributions are assumed to be paid on July 1 and December 31.

Item (2) reflects 4.0% growth in payroll as well as 0.15% adjustment to normal cost to reflect the effects of mortality improvement due to generational mortality assumption.

Projected normal cost does not reflect the future impact of pension reform for future hires.

Amortization payments increase at 2.75% per year.

Assumes contribution of budgeted amount for fiscal year 2015.



**SECTION 3: Supplemental Information for the City of Holyoke Retirement System****EXHIBIT A****Table of Plan Coverage**

	Year Ended December 31		Change From Prior Year
Category	2013	2011	
Active participants in valuation:			
Number	1,250	1,228	1.8%
Average age	45.8	45.9	N/A
Average years of service	12.2	12.2	N/A
Total payroll	\$55,011,023	\$53,488,428	2.8%
Average payroll	44,009	43,557	1.0%
Member contributions	51,855,503	48,567,397	6.8%
Inactive participants entitled to a return of their employee contributions	138	131	5.3%
Inactive participants with a vested right to a deferred or immediate vested benefit	22	21	4.8%
Retired participants:			
Number in pay status	684	662	3.3%
Average age	73.1	73.1	N/A
Average monthly benefit	\$2,098	\$1,948	7.7%
Disabled participants:			
Number in pay status	88	90	-2.2%
Average age	63.8	63.7	N/A
Average monthly benefit	\$2,487	\$2,354	5.6%
Number in suspended status	0	1	N/A
Beneficiaries in pay status:			
Number in pay status	155	169	-8.3%
Average age	76	75	N/A
Average monthly benefit	\$1,257	\$1,207	4.1%



### SECTION 3: Supplemental Information for the City of Holyoke Retirement System

#### EXHIBIT B

#### Participants in Active Service as of December 31, 2013 By Age, Years of Service, and Average Payroll

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	50	48	2	--	--	--	--	--	--	--
	\$26,182	\$25,954	\$31,673	--	--	--	--	--	--	--
25 - 29	93	71	22	--	--	--	--	--	--	--
	\$33,790	\$32,942	\$36,528	--	--	--	--	--	--	--
30 - 34	125	67	33	24	1	--	--	--	--	--
	\$39,283	\$32,646	\$45,690	\$48,926	\$41,156	--	--	--	--	--
35 - 39	126	44	30	37	15	--	--	--	--	--
	\$44,276	\$36,785	\$43,261	\$52,402	\$48,231	--	--	--	--	--
40 - 44	170	40	34	46	33	15	2	--	--	--
	\$45,648	\$34,230	\$40,531	\$47,336	\$50,984	\$71,025	\$43,762	--	--	--
45 - 49	176	28	20	38	40	23	25	2	--	--
	\$49,733	\$30,151	\$43,737	\$48,105	\$50,876	\$67,021	\$60,845	\$54,159	--	--
50 - 54	212	39	25	25	40	34	31	18	--	--
	\$48,685	\$34,445	\$45,860	\$45,832	\$38,494	\$54,528	\$62,948	\$74,475	--	--
55 - 59	165	22	20	24	31	16	24	26	2	--
	\$46,439	\$33,101	\$34,906	\$45,988	\$44,815	\$48,344	\$54,092	\$57,675	\$85,891	--
60 - 64	99	9	8	23	20	13	14	6	4	2
	\$44,086	\$40,974	\$49,463	\$43,455	\$40,888	\$35,191	\$44,272	\$53,398	\$71,461	\$49,668
65 - 69	23	6	1	3	2	5	3	1	2	--
	\$39,813	\$48,070	\$50,185	\$32,418	\$38,483	\$31,677	\$44,108	\$32,979	\$39,591	--
70 & over	11	3	2	2	--	1	2	1	--	--
	\$26,670	\$11,169	\$22,006	\$22,586	--	\$16,989	\$63,708	\$26,281	--	--
Total	1,250	377	197	222	182	107	101	54	8	2
	\$44,009	\$32,802	\$41,928	\$47,342	\$45,637	\$54,833	\$56,810	\$61,631	\$67,101	\$49,668



**SECTION 3: Supplemental Information for the City of Holyoke Retirement System****EXHIBIT C****Summary Statement of Income and Expenses on an Actuarial Value Basis**

	<b>Year Ended December 31, 2013</b>	<b>Year Ended December 31, 2012</b>
<b>Net assets at actuarial value at the beginning of the year</b>	\$190,861,463	\$171,322,821
<b>Contribution income:</b>		
Employer contributions	\$16,480,049	\$16,089,569
Employee contributions	5,301,711	5,159,094
Federal Grant Reimbursement and other contributions	22,345	28,639
Less administrative expenses	<u>-394,456</u>	<u>-395,843</u>
Net contribution income	21,409,649	20,881,459
<b>Net investment income</b>	<u>23,102,736</u>	<u>20,797,451</u>
<b>Total income available for benefits</b>	\$44,512,385	\$41,678,910
<b>Less benefit payments:</b>		
Pensions	-\$21,855,756	-\$20,834,336
Net 3(8)(c) reimbursements	-342,406	-331,453
Refunds, annuities, and Option B refunds	<u>-639,060</u>	<u>-974,479</u>
Net benefit payments	-\$22,837,222	-\$22,140,268
<b>Change in reserve for future benefits</b>	\$21,675,163	\$19,538,642
<b>Net assets at actuarial value at the end of the year</b>	\$212,536,626	\$190,861,463



**SECTION 3: Supplemental Information for the City of Holyoke Retirement System****EXHIBIT D****Development of the Fund Through December 31, 2013**

<b>Year Ended December 31</b>	<b>Employer Contributions</b>	<b>Employee Contributions</b>	<b>Other Contributions</b>	<b>Net Investment Return*</b>	<b>Administrative Expenses</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
2004	\$9,473,610	\$3,974,742	\$163,739	\$6,363,022	\$0	\$17,401,652	\$154,649,632
2005	10,061,673	4,118,962	118,553	8,501,495	0	16,971,520	160,478,795
2006	11,704,521	3,956,419	70,551	16,963,828	0	17,847,941	175,326,173
2007	11,783,144	4,363,648	20,192	13,980,683	0	18,243,870	187,229,970
2008	12,073,533	4,483,149	94,334	-35,586,665	0	18,660,083	149,634,238
2009	12,161,990	4,833,442	102,049	28,419,952	353,755	19,335,464	175,462,452
2010	13,495,000	4,615,242	84,400	1,003,663	381,466	20,152,472	174,126,819
2011	14,169,211	5,179,594	102,071	-681,482	441,140	21,132,253	171,322,821
2012	16,089,569	5,159,094	28,639	20,797,451	395,843	22,140,268	190,861,463
2013	16,480,049	5,301,711	22,345	23,102,736	394,456	22,837,222	212,536,626

*\* Net of investment fees and administrative expenses prior to 2009, net of investment fees only in 2009 and later.*



### SECTION 3: Supplemental Information for the City of Holyoke Retirement System

#### EXHIBIT E

Table of Amortization Bases as of July 1, 2014

Type	Annual Payment	Years Remaining	Outstanding Balance as of July 1, 2014
2002 ERI	\$31,406	18.00	\$381,848
2003 ERI	293,338	18.00	3,566,582
2010 ERI	154,051	8.00	945,198
FY04-07 Section 90 ACD	99,962	18.00	1,215,396
FY 08 Section 90ACD	36,957	18.00	449,343
Remaining unfunded liability	<u>12,530,436</u>	18.00	<u>152,352,311</u>
Total	\$13,146,150		\$158,910,678

*Notes: Recommended contributions are assumed to be paid July 1 and December 31.*

*The 2010 ERI liability is amortized in level payments and all other amortization payments increase 2.75% per year.*

*Does not reflect adjustment to set fiscal 2015 appropriation to budgeted amount.*



### SECTION 3: Supplemental Information for the City of Holyoke Retirement System

#### EXHIBIT F

#### Department Results

	Geriatric Authority	Water	Waste Water	Gas & Electric	Housing	All Other	Total
<b>Active Participants</b>							
Number	120	28	52	139	47	864	1,250
Annual payroll projected for calendar 2014	\$3,345,708	\$1,521,608	\$2,115,874	\$10,776,026	\$2,780,316	\$36,963,259	\$57,502,791
Average age	42.9	49.0	50.0	46.7	47.7	45.6	45.8
Average service	5.4	20.0	12.2	12.6	14.1	12.8	12.2
Normal cost	\$403,463	\$135,494	\$253,139	\$1,891,259	\$277,619	\$5,117,587	\$8,078,561
Administrative expenses	20,726	6,960	13,004	97,155	14,261	262,893	415,000
Expected employee contributions	309,450	133,662	193,147	1,067,376	267,851	3,417,398	5,388,884
Employer normal cost	114,739	8,792	72,996	921,038	24,029	1,963,082	3,104,677
Accrued liability	3,679,969	5,209,485	5,016,549	27,578,861	6,967,328	104,619,625	153,071,817
<b>Retired Participants</b>							
Number	73	30	64	153	42	565	927
Total benefits	\$ 1,126,965	\$752,816	\$1,007,159	\$5,085,956	\$996,914	\$13,218,388	\$22,188,198
Average benefits	15,438	25,094	15,737	33,242	23,736	23,395	23,935
Accrued liability	10,984,948	6,683,481	10,448,186	46,474,149	9,252,221	123,121,991	206,964,975
Net 3(8)c liability	-	-	-	-	-	-	3,089,127
<b>Vested Participants</b>							
Number	3	2	-	-	2	15	22
Total expected benefits	\$ 27,376	\$2,432	-	-	\$39,506	\$147,129	\$216,443
Average expected benefits	9,125	1,216	-	-	19,753	9,809	9,838
Accrued liability	371,466	22,508	-	-	343,520	1,288,889	2,026,383
<b>Inactive Participants</b>							
Number	72	1	4	2	-	59	138
Employee contribution balance	\$149,372	\$8,588	\$18,381	\$16,131	-	\$281,012	\$473,484



### SECTION 3: Supplemental Information for the City of Holyoke Retirement System

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#### EXHIBIT G

#### Definitions of Pension Terms

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or actuarial assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Withdrawal rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial accrued liability for actives:**

The value of all projected benefit payments for current members less the portion that will be paid by future normal costs.

**Actuarial accrued liability for pensioners:**

The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded actuarial accrued liability:**

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.



### SECTION 3: Supplemental Information for the City of Holyoke Retirement System

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**Amortization of the unfunded actuarial accrued liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

**Investment return:**

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

### EXHIBIT I

#### Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 155 beneficiaries in pay status)	927
2. Inactive participants with a right to a return of their contributions	138
3. Inactive participants with a vested right to a deferred or immediate benefit as of December 31, 2013	22
4. Participants active during the year ended December 31, 2013 with total accumulated contributions of \$51,855,503 and projected payroll of \$57,502,791	1,250

The actuarial factors as of the January 1, 2014 are as follows:

1. Normal cost		\$8,078,561
2. Administrative expenses		415,000
3. Expected employee contributions		<u>-5,388,884</u>
4. Employer normal cost: (1) + (2) + (3)		\$3,104,677
5. Actuarial accrued liability		365,625,786
Retired participants and beneficiaries	\$210,054,102 <sup>1</sup>	
Active participants	153,071,817	
Inactive participants	2,499,867	
6. Actuarial value of assets (\$230,869,315 at market value as reported on the Annual Statement)		212,536,626
7. Unfunded actuarial accrued liability: (5) – (6)		153,089,160

The actuarial factors projected to July 1, 2014 are as follows:

1. Employer normal cost projected to July 1, 2014, adjusted for timing <sup>2</sup>	\$3,225,800
2. Projected unfunded actuarial accrued liability	158,910,678
3. Payment on projected unfunded actuarial accrued liability, adjusted for timing <sup>2</sup>	13,892,505
4. Recommended contribution: (1) + (3), adjusted for timing <sup>2</sup>	<u>\$17,118,305</u>
5. Projected payroll	\$58,641,570

<sup>1</sup> Includes net 3(8)(c) liability of \$3,089,127.

<sup>2</sup> Recommended contributions are assumed to be paid on July 1 and December 31.



**SECTION 4: Reporting Information for the City of Holyoke Retirement System**

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**EXHIBIT II**

**Supplementary Information Required by the GASB - History of Employer Contributions**

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<b>Plan Year Ended December 31</b>	<b>Annual Required Contribution</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
2004	\$9,473,610	\$9,473,610	100.0%
2005	10,061,673	10,061,673	100.0%
2006	11,704,521	11,704,521	100.0%
2007	11,783,144	11,783,144	100.0%
2008	12,073,533	12,073,533	100.0%
2009	12,161,990	12,161,990	100.0%
2010	13,495,000	13,495,000	100.0%
2011	14,169,211	14,169,211	100.0%
2012	16,089,569	16,089,569	100.0%
2013	16,480,049	16,480,049	100.0%

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**SECTION 4: Reporting Information for the City of Holyoke Retirement System****EXHIBIT III****Supplementary Information Required by the GASB - Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)</b>
01/01/1998	\$103,682,801	\$161,786,384	\$58,103,583	64.09%	\$40,572,345	143.21%
01/01/1999	124,672,189	180,215,921	55,543,732	69.18%	41,606,346	133.50%
01/01/2001	140,947,847	188,431,479	47,483,632	74.80%	41,123,979	115.46%
01/01/2003	147,834,259	218,195,543	70,361,284	67.75%	45,373,511	155.07%
01/01/2005	154,649,632	248,324,816	93,675,184	62.28%	47,514,976	197.15%
01/01/2007	175,326,173	265,688,005	90,361,832	65.99%	49,762,976	181.58%
01/01/2009	149,634,238	284,186,420	134,552,182	52.65%	53,208,967	252.88%
01/01/2010	175,462,452	305,560,578	130,098,126	57.42%	54,171,671	240.16%
01/01/2012	171,322,821	336,471,320	165,148,499	50.92%	56,134,716	294.20%
01/01/2014	212,536,626	365,625,786	153,089,160	58.13%	57,502,791	266.23%



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

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### EXHIBIT IV

#### Supplementary Information Required by the GASB

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<b>Valuation date</b>	January 1, 2014
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Level payments on the 2010 ERI liability and payments increasing 2.75% per year for the remaining unfunded liability, with fiscal 2016 appropriation set equal to fiscal 2015 appropriation.
<b>Remaining amortization period</b>	8 years from July 1, 2014 for the 2010 ERI liability and 18 years from July 1, 2014 for the remaining unfunded liability.
<b>Asset valuation method</b>	Market value of assets less unrecognized returns in each of the last four years. Unrecognized return is equal to the difference between the actual and expected return on a market value basis, and is recognized over a four-year period, further adjusted, if necessary, to be within 20% of the market value.

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<b>Actuarial assumptions:</b>	
Investment rate of return	7.75% (previously, 8.00%)
Inflation rate	4.00% (previously 4.5%)
Projected salary increases	Varies by length of service with ultimate rates of 4.25% for Group 1, 4.50% for Group 2 and 4.75% for Group 4 (previously, 4.75% for Groups 1 and 2 and 5.25% for Group 4)
Cost of living adjustments	3.00% of first \$12,000 of retirement income

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<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	927
Inactive participants entitled to a return of their employee contributions	138
Inactive participants with a vested right to a deferred or immediate vested benefit	22
Active participants	<u>1,250</u>
Total	2,337

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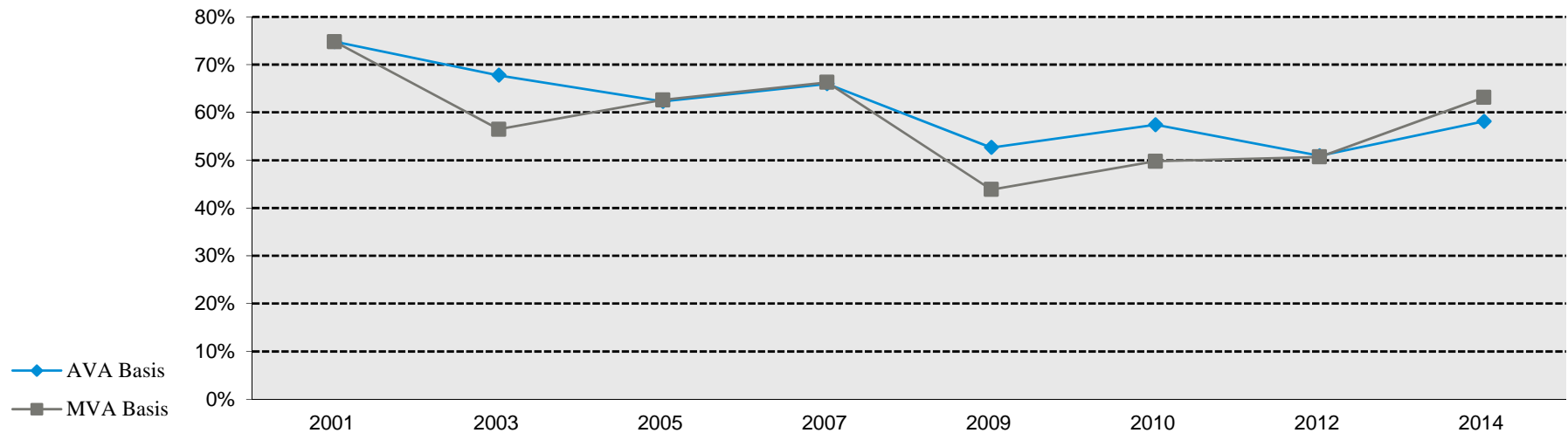
## SECTION 4: Reporting Information for the City of Holyoke Retirement System

### EXHIBIT V

#### Funded Ratio

A critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

The chart below depicts a history of the funded ratios for this plan. On a market value basis, the funded ratio has increased from 50.68% as of January 1, 2012 to 63.14% as of January 1, 2014. On an actuarial basis, the funded ratio has increased from 50.92% as of January 1, 2012 to 58.13% as of January 1, 2014.





## SECTION 4: Reporting Information for the City of Holyoke Retirement System

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### EXHIBIT VI

#### Actuarial Assumptions and Actuarial Cost Method

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##### Mortality Rates:

<i>Pre-Retirement:</i>	RP-2000 Employee Mortality Table projected generationally with Scale AA from 2010 (previously, RP-2000 Employee Mortality Table projected 12 years with Scale AA )
<i>Healthy Retiree:</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale AA from 2010 (previously, RP-2000 Healthy Annuitant Mortality Table projected 12 years with Scale AA)
<i>Disabled Retiree:</i>	RP-2000 Healthy Annuitant Mortality Table set forward 3 years for males only projected generationally with Scale AA from 2010 (previously, RP-2000 Healthy Annuitant Mortality Table set forward 3 years for males only)

The RP-2000 Employee Mortality Table and the RP-2000 Healthy Annuitant Mortality Table reasonably reflects the mortality of the Plan as of the measurement date. The mortality tables were then adjusted to future years using generational projection under Scale AA from 2010 to reflect future mortality improvements.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

### Termination Rates before Retirement:

#### Groups 1 and 2 - Rate (%)

Age	Mortality		Disability
	Male	Female	
20	0.03	0.02	0.02
25	0.04	0.02	0.02
30	0.04	0.03	0.03
35	0.08	0.05	0.06
40	0.11	0.07	0.10
45	0.18	0.11	0.15
50	0.21	0.17	0.19
55	0.30	0.25	0.24
60	0.49	0.39	0.28

Notes: Mortality rates do not reflect generational projection.  
 55% of the disability rates shown represent accidental disability.  
 40% of the accidental disabilities will die from the same cause as the disability.  
 55% of the death rates shown represent accidental death.

#### Group 4 – Rate (%)

Age	Mortality		Disability
	Male	Female	
20	0.03	0.02	0.20
25	0.04	0.02	0.20
30	0.04	0.03	0.30
35	0.08	0.05	0.30
40	0.11	0.07	0.30
45	0.18	0.11	1.00
50	0.21	0.17	1.25
55	0.30	0.25	1.20
60	0.49	0.39	0.85

Notes: Mortality rates do not reflect generational projection.  
 90% of the disability rates shown represent accidental disability.  
 40% of the accidental disabilities will die from the same cause as the disability.  
 90% of the death rates shown represent accidental death.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

### Withdrawal Rates:

Rate per year (%)	
Years of Service	Years of Service
Groups 1 and 2	Group 4
0	0 – 10
1	11+
2	
3	
4	
5 – 9	
10 – 14	
15 – 19	
20 – 24	
25 – 29	
30+	

### Retirement Rates:

Rate per year (%)	
Groups 1 and 2	
Age	Group 4
Male	Female
45 – 49	--
50 – 54	1.0
55 – 59	2.0
60 – 61	15.0
62 – 64	20.0
65 – 68	25.0
69	100.0
70	--

### Retirement Age for Inactive Vested Participants:

55 for participants hired prior to April 2, 2012. For participants hired April 2, 2012 or later, 60 for Group 1, 55 for Group 2 and 50 for Group 4.



#### SECTION 4: Reporting Information for the City of Holyoke Retirement System

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<b>Unknown Data for Participants:</b>	Same as those exhibited by participants with similar known characteristics.																																														
<b>Family Composition:</b>	75% of participants are assumed to be married. None are assumed to have dependent children. Females are assumed to be three years younger than their spouses.																																														
<b>Benefit Election:</b>	All participants are assumed to elect Option A.																																														
<b>Net Investment Return:</b>	7.75% (previously, 8.00%) net of investment expenses																																														
<b>Administrative Expenses:</b>	\$415,000 for calendar 2014, payable at the beginning of the year increasing at 4.0% per year (previously, \$400,000 for calendar 2012 increasing at 4.5% per year).																																														
<b>Interest on Employee Contributions:</b>	3.5%																																														
<b>Salary Increases:</b>	<table><tr><th><b>Years of Service</b></th><th><b>Group 1</b></th><th><b>Group 2</b></th><th><b>Group 4</b></th></tr><tr><td>0</td><td>6.00%</td><td>6.00%</td><td>7.00%</td></tr><tr><td>1</td><td>5.50%</td><td>5.50%</td><td>6.50%</td></tr><tr><td>2</td><td>5.50%</td><td>5.50%</td><td>6.00%</td></tr><tr><td>3</td><td>5.25%</td><td>5.25%</td><td>5.75%</td></tr><tr><td>4</td><td>5.25%</td><td>5.25%</td><td>5.25%</td></tr><tr><td>5</td><td>4.75%</td><td>4.75%</td><td>5.25%</td></tr><tr><td>6</td><td>4.75%</td><td>4.75%</td><td>4.75%</td></tr><tr><td>7</td><td>4.50%</td><td>4.50%</td><td>4.75%</td></tr><tr><td>8</td><td>4.50%</td><td>4.50%</td><td>4.75%</td></tr><tr><td>9+</td><td>4.25%</td><td>4.50%</td><td>4.75%</td></tr></table> <p>(Previously, 4.75% for Group 1 and 2 employees and 5.25% for Group 4, including allowance for inflation.)</p>			<b>Years of Service</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 4</b>	0	6.00%	6.00%	7.00%	1	5.50%	5.50%	6.50%	2	5.50%	5.50%	6.00%	3	5.25%	5.25%	5.75%	4	5.25%	5.25%	5.25%	5	4.75%	4.75%	5.25%	6	4.75%	4.75%	4.75%	7	4.50%	4.50%	4.75%	8	4.50%	4.50%	4.75%	9+	4.25%	4.50%	4.75%
<b>Years of Service</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 4</b>																																												
0	6.00%	6.00%	7.00%																																												
1	5.50%	5.50%	6.50%																																												
2	5.50%	5.50%	6.00%																																												
3	5.25%	5.25%	5.75%																																												
4	5.25%	5.25%	5.25%																																												
5	4.75%	4.75%	5.25%																																												
6	4.75%	4.75%	4.75%																																												
7	4.50%	4.50%	4.75%																																												
8	4.50%	4.50%	4.75%																																												
9+	4.25%	4.50%	4.75%																																												
<b>2013 Salary:</b>	2013 salary equal to salary reported in the data, annualized for new hires.																																														
<b>Total Service:</b>	Total creditable service reported in the data.																																														



#### SECTION 4: Reporting Information for the City of Holyoke Retirement System

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<b>Net 3(8)(c) Liability:</b>	Assumed \$342,406 in net annual benefits paid to other municipal retirement systems would result in a liability of \$3,089,127. (Previously, assumed \$347,645 in net annual benefits paid to other municipal retirement systems would result in a liability of \$3,120,063.)
<b>Actuarial Value of Assets:</b>	Market value of assets as reported in the System's Annual Statement less unrecognized return in each of the last four years. Unrecognized return is equal to the difference between the actual market value return and the expected market value return and is recognized over a four-year period, further adjusted, if necessary, to be within 20% of the market value.
<b>Actuarial Cost Method:</b>	Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant less total service as defined above. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary. Normal Cost is determined using the plan of benefits applicable to each participant. (Previously, Normal Cost was determined as if the current plan of benefits had always been in effect.)
<b>Changes in Assumptions:</b>	<p>Based on past experience and future expectations, the following actuarial assumptions were changed:</p> <ul style="list-style-type: none"><li>➤ The investment return assumption was decreased from 8.00% to 7.75%.</li><li>➤ The administrative expense assumption was increased from \$400,000 for calendar 2012 to \$415,000 for calendar 2014.</li><li>➤ The pre-retirement mortality assumption was changed from the RP-2000 Employee Mortality Table projected 12 years with Scale AA to the RP-2000 Employee Mortality Table projected generationally with Scale AA from 2010.</li><li>➤ The mortality assumption for non-disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table projected 12 years with Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale AA from 2010.</li><li>➤ The mortality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only to the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only projected generationally with Scale AA from 2010.</li></ul>



#### **SECTION 4: Reporting Information for the City of Holyoke Retirement System**

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- The assumed rates of salary increases were changed from level rates of 4.75% per year for Group 1 and Group 2 and 5.25% per year for Group 4 to rates based on years of service with ultimate rates of 4.25% per year for Group 1, 4.5% per year for Group 2 and 4.75% per year for Group 4.
- The actuarial cost method was changed to better reflect the impact of the plan changes effective for employees hired on or after April 2, 2012.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

### EXHIBIT VII

#### Summary of Plan Provisions

This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

**Plan Year:** January 1 through December 31

#### Retirement Benefits

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

For employees hired prior to April 2, 2012, the annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

#### Age Last Birthday at Date of Retirement

Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

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A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement.

For employees hired on April 2, 2012 or later, the annual amount of the retirement allowance is based on the member's final five-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following tables based on the age and years of creditable service of the member at retirement:

**For members with less than 30 years of creditable service:**

**Age Last Birthday at Date of Retirement**

Percent	Group 1	Group 2	Group 4
2.50	67 or over	62 or over	57 or over
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

**For members with 30 years of creditable service or greater:**

**Age Last Birthday at Date of Retirement**

Percent	Group 1	Group 2	Group 4
2.500	67 or over	62 or over	57 or over
2.375	66	61	56
2.250	65	60	55
2.125	64	59	54
2.000	63	58	53
1.875	62	57	52
1.750	61	56	51
1.625	60	55	50



#### SECTION 4: Reporting Information for the City of Holyoke Retirement System

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A member's final five-year average salary is defined as the greater of the highest consecutive five-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last five years of creditable service prior to retirement.

For employees who became members after January 1, 2011, regular compensation is limited to 64% of the federal limit found in 26 U.S.C. 401(a)(17). In addition, regular compensation for members who retire after April 2, 2012 will be limited to prohibit "spiking" of a member's salary to increase the retirement benefit.

For all employees, the maximum annual amount of the retirement allowance is 80 percent of the member's final average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80 percent maximum.

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#### Employee Contributions

Date of Hire	Contribution Rate
Prior to January 1, 1975	5%
January 1, 1975 – December 31, 1983	7%
January 1, 1984 – June 30, 1996	8%
July 1, 1996 onward	9%

In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who voluntarily withdraw their contributions with less than 10 ten years of credited service receive 3% interest on their contributions.

Employees in Group 1 hired on or after April 2, 2012 with 30 years of creditable service or greater will pay a base contribution rate of 6%.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

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### Retirement Benefits (Superannuation)

Members of Group 1, 2 or 4 hired prior to April 2, 2012 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members hired prior to April 2, 2012 who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the System).

Members of Group 1 hired April 2, 2012 or later may retire upon the attainment of age 60. Members of Group 2 or 4 hired April 2, 2012 or later may retire upon the attainment of age 55. Members of Group 4 may retire upon attainment of age 50 with ten years of creditable service.

Members hired April 2, 2012 or later who terminate before age 55 (60 for members of Group 1) with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (60 for members of Group 1) provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the System.

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### Ordinary Disability Benefit

A member who is unable to perform his or her job due to a non-occupational disability will receive a retirement allowance if he or she has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be determined as if the member retired for superannuation at age 55 (age 60 for Group 1 members hired on or after April 2, 2012), based on the amount of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his or her own contributions.

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### Accidental Disability Benefit

For a job-connected disability, the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his or her own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.



## SECTION 4: Reporting Information for the City of Holyoke Retirement System

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### Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of death, a spouse's benefit will be paid equal to the amount the employee would have received under Option C. The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$250 per month, and there are additional amounts for surviving children.

If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay, in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children. However, in accordance with Section 100 of Chapter 32, the surviving spouse of a police officer, firefighter or corrections officer is killed in the line of duty will be eligible to receive an annual benefit equal to the maximum salary held by the member at the time of death.

Upon the death of a job-connected disability retiree who retired prior to November 7, 1996 and could not elect an Option C benefit, a surviving spouse will receive an allowance of \$6,000 per year if the member dies for a reason unrelated to cause of disability.

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### "Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman, permanent member of a police department, or certain employees of a county correctional facility is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.



#### SECTION 4: Reporting Information for the City of Holyoke Retirement System

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##### **Options:**

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at the time of death any contributions not expended for annuity payments will be refunded to the beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing a survivor with two-thirds of the lesser amount. Option C pensioners will have benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

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##### **Post-Retirement Benefits:**

The Board has adopted the provisions of Section 51 of Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

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##### **Changes in Plan Provisions:**

Members hired on or after April 2, 2012 are covered by the provisions of Chapter 32 as amended by Chapter 176 of the Acts of 2011 and Chapter 139 of the Acts of 2012.



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

### EXHIBIT 1

#### Net Pension Liability

The components of the net pension liability of the City of Holyoke Retirement System at December 31, 2013 were as follows:

Total pension liability	\$365,625,786
Plan fiduciary net position	230,869,315
System's net pension liability	134,756,471
Plan fiduciary net position as a percentage of the total pension liability	63.14%

*Actuarial assumptions.* The total pension liability was determined by an actuarial valuation as of December 31, 2013, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	4.00%
Salary increases	Varies by length of service with ultimate rates of 4.25% for Group 1, 4.50% for Group 2 and 4.75% for Group 4
Investment rate of return	7.75%, net of pension plan investment expense, including inflation
Cost of Living Adjustments	3% of first \$12,000
Pre-retirement:	RP-2000 Employee Mortality Table projected generationally using Scale AA from 2010
Healthy Retiree:	RP-2000 Healthy Annuitant Mortality Table projected generationally using Scale AA from 2010
Disabled Retiree:	RP-2000 Healthy Annuitant Mortality Table projected generationally using Scale AA from 2010, set forward 3 years for males

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2013 are summarized in the following table:



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

Asset Class	Long-Term Expected Real Rate of Return
Domestic equity	6.60%
International developed markets equity	7.10%
Core fixed income	2.20%
High-yield fixed income	4.70%
Real estate	4.40%
Commodities	4.40%
Hedge fund, GTAA, Risk parity	3.90%
Private equity	11.70%
Cash	1.80%

*Discount rate:* The discount rate used to measure the total pension liability was 7.75%. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that City of Holyoke Retirement System contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

*Sensitivity of the net pension liability to changes in the discount rate.* The following presents the net pension liability of the City of Holyoke Retirement System, calculated using the discount rate of 7.75%, as well as what the City of Holyoke Retirement System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75%) or 1-percentage-point higher (8.75%) than the current rate:

	1% Decrease (6.75%)	Current Discount (7.75%)	1% Increase (8.75%)
City of Holyoke Retirement System's net pension liability as of December 31, 2013	\$174,845,541	\$134,756,471	\$100,754,784



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

### EXHIBIT 2

#### Pension Expense and Deferred Outflows/Inflows of Resources Related to Pensions

##### A. Pension expense for the year ended June 30, 2015

Service cost	\$8,078,561
Interest	--
Recognized portion of current-period difference between expected and actual experience	--
Contributions – employee	--
Projected earnings on pension plan investments	--
Recognized portion of current-period difference between projected and actual earnings on pension plan investments	--
Recognition of deferred outflows of resources	--
Recognition of deferred inflows of resources	--
Pension expense for fiscal year ended June 30, 2015	To be determined

##### B. Deferred outflows/inflows of resources related to pensions

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	--	--
Changes of assumptions	--	--
Changes of benefit terms	--	--
Net difference between projected and actual earnings on pension plan investments	--	--
Total	To be determined	To be determined

##### C. Projected recognition of deferred outflows/(inflows)

	Year Ended June 30,	Recognition
	2016	--
	2017	--
	2018	--
	2019	--
	2020	--
	Thereafter	--

*Note: Entry Age Normal liabilities calculated using ages and service amounts as of January 1, 2014 are used to measure the pension expense for fiscal year ended June 30, 2015.*



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

### EXHIBIT 3

#### Schedule of Changes in the Net Pension Liability – Last Ten Years

	Year End December 31,									
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
<b>Total pension liability</b>										
Service cost	\$8,078,561									
Interest	--									
Differences between expected and actual experience	--									
Changes of assumptions	--									
Changes of benefit terms	--									
Benefit payments, including refunds of employee contributions	--									
<b>Net change in total pension liability</b>	TBD									
<b>Total pension liability - beginning</b>	365,625,786									
<b>Total pension liability - ending (a)</b>	TBD									
<b>Plan fiduciary net position</b>										
Contributions - employer	--									
Contributions - employee	--									
Net investment income	--									
Benefit payments, including refunds of employee contributions	--									
Other	--									
<b>Net change in fiduciary net position</b>	TBD									
<b>Plan fiduciary net position - beginning</b>	230,869,315									
<b>Plan fiduciary net position - ending (b)</b>	TBD									
<b>Net pension liability – ending: (a)-(b)</b>	TDB									
<b>Plan's fiduciary net position as a percentage of the total pension liability</b>	TBD									
<b>Covered-employee payroll</b>	\$57,502,791									
<b>Net pension liability as a percentage of covered-employee payroll</b>	TBD									

\*Covered-employee payroll as reported in the January 1, 2014 funding valuation report



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

### EXHIBIT 4

#### Schedule of Contributions – Last Ten Years

	Year End December 31,									
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Actuarially determined contribution*	\$17,118,305									
Contributions in relation to the actuarially determined contribution	TBD									
Contribution deficiency (excess)	TBD									
Covered-employee payroll	\$57,502,791									
Contributions as a percentage of covered-employee payroll	29.77%									

(Historical information prior to implementation of GASB 67/68 is not required)

\* Based on the results of the January 1, 2012 actuarial valuation (including assumptions and methods) which determined budgeted appropriation for fiscal 2015.



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

### EXHIBIT 5

#### Notes to Required Supplementary Information

<b>Valuation date</b>	Actuarial determined contribution rates are calculated as of January 1 two years prior to the end of the employer's fiscal year in which contributions are reported.
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Level payments on the 2010 ERI liability and payments increasing 2.75% per year for the remaining unfunded liability, with fiscal 2016 appropriation set equal to fiscal 2015 appropriation.
<b>Remaining amortization period</b>	8 years from July 1, 2014 for the 2010 ERI liability and 18 years from July 1, 2014 for the remaining unfunded liability.
<b>Asset valuation method</b>	Market value of assets less unrecognized returns in each of the last four years. Unrecognized return is equal to the difference between the actual and expected return on a market value basis, and is recognized over a four-year period, further adjusted, if necessary, to be within 20% of the market value.
<b>Actuarial assumptions:</b>	
Investment rate of return	7.75% (previously, 8.00%)
Discount rate	7.75% (previously, 8.00%)
Inflation rate	4.00% (previously, 4.5%)
Projected salary increases	Varies by length of service with ultimate rates of 4.25% for Group 1, 4.50% for Group 2 and 4.75% for Group 4 (previously, 4.75% for Groups 1 and 2 and 5.25% for Group 4)
Cost of living adjustments	3.00% of first \$12,000 of retirement income
<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	927
Inactive participants entitled to a return of their employee contributions	138
Inactive participants with a vested right to a deferred or immediate benefit	22
Active participants	<u>1,250</u>
Total	2,337



## SECTION 5: GASB 67/68 Information for the City of Holyoke Retirement System

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### Changes in Assumptions:

The investment return assumption was decreased from 8.00% to 7.75%.

The administrative expense assumption was increased from \$400,000 for calendar 2012 to \$415,000 for calendar 2014.

The pre-retirement mortality assumption was changed from the RP-2000 Employee Mortality Table projected 12 years with Scale AA to the RP-2000 Employee Mortality Table projected generationally with Scale AA from 2010.

The mortality assumption for non-disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table projected 12 years with Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale AA from 2010.

The mortality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only to the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only projected generationally with Scale AA from 2010.

The assumed rates of salary increases were revised to more accurately reflect recent experience.

The actuarial cost method was changed to better reflect the impact of the plan changes effective for employees hired on or after April 2, 2012.

### Changes in Plan Provisions:

Members hired on or after April 2, 2012 are covered by the provisions of Chapter 32 as amended by Chapter 176 of the Acts of 2011 and Chapter 139 of the Acts of 2012.

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